



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,956	04/27/2007	Paul A. Kohl	GTR205-0002 US	1856
55165	7590	01/19/2011	EXAMINER	
PROMERUS, LLC 9921 BRECKSVILLE ROAD BRECKSVILLE, OH 44141			GEBREYESUS, YOSEF	
			ART UNIT	PAPER NUMBER
			2811	
			MAIL DATE	DELIVERY MODE
			01/19/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/534,956

Applicant(s)

KOHLE ET AL.

Examiner

YOSEF GEBREYESUS

Art Unit

2811

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-31, 33-50 and 52-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-31, 33-50 and 52-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Oath/Declaration

The Oath/Declaration filed on 4/27/2007 is acceptable.

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 33, is cited as it depends on the cancelled claim 32. However, it is unclear, if it is meant to depend on claim 24.

6. For the purpose of examination, the examiner assumed that claim 33 depends on claim 24.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims **24-26, 30-31, 33-36, 40, 42, 52, and 55** are rejected under 35

U.S.C. 102(e) as being anticipated by Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002; hereinafter Heck).

8. Regarding **claim 24**, figure 9 (figure 9 is formed with the same steps as figures 1-8 without the openings 32) (paragraph [0021]) and related text of Heck discloses forming a thermally decomposable sacrificial layer 15 and 25 (paragraph [0015]) on a substrate 12 of a micro electro-mechanical device 18, the sacrificial layer 15 & 25 encapsulating a portion of the micro electro- mechanical device 18 (paragraph [0013]) ; forming an overcoat layer (cover) 20 (paragraph [0018]) around the sacrificial layer 15 & 25; and thermally decomposing the sacrificial layer (paragraph [0015]), wherein decomposed molecules of the sacrificial layer permeate through the overcoat layer 20 (paragraph [0021]), and wherein a gas cavity 22 (paragraph [0014]) is formed where the thermally decomposable sacrificial layer 15 & 25 was formed, wherein the overcoat layer 20 provides an airtight (hermetic seal or vacuum cavity) (paragraph [0014] lines 11-15) and enclosure around the gas cavity 22 (paragraph [0014]).

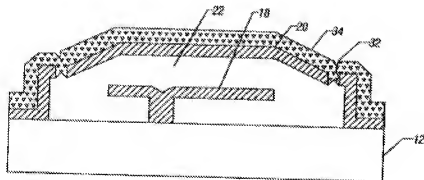


FIG. 9

9. Regarding **claim 25**, figure 9 and related text of Heck discloses depositing the sacrificial layer 15 by spin-coating (paragraph [0015]); and patterning the sacrificial layer (paragraph [0016]).
10. Regarding **claim 26**, figure 9 and related text of Heck discloses wherein the sacrificial layer 15 & 25 has a decomposition temperature less than a decomposition temperature of the substrate and a decomposition temperature of the overcoat layer 20 (the sacrificial layer 15/25 decomposes through the cover layer 20, which inherently indicates the decomposition temperature of the substrate and the cover is higher than the decomposition temperature of the sacrificial layer, paragraph [0015] & [0021]).
11. Regarding **claim 30**, figure 9 and related text of Heck discloses wherein the overcoat layer (cover) 20 has not been perforated (sealed by sealing material 34) (paragraph [0021]).
12. Regarding **claim 31**, figure 9 and related text of Heck discloses wherein the overcoat layer 20 is substantially free of sacrificial layer after the sacrificial layer has been thermally decomposed (paragraph [0021] discloses the sacrificial layers 15 and 25

pass through the porous cover 20; thus the overcoat layer 20 is considered free of sacrificial material 15 & 25).

13. Regarding **claim 33**, the limitation "the overcoat layer provides protection from mechanical forces" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

14. Regarding **claim 34**, the limitation "the overcoat layer further provides protection against water" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

15. Regarding **claim 35**, the limitation "the overcoat layer further provides protection against oxygen gas" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

16. Regarding **claim 36**, the limitation "the overcoat layer further provides protection against exposure to gaseous materials" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

17. Regarding **claim 40**, figure 9 and related text of Heck discloses forming a barrier layer 34 around the overcoat layer 20. The limitation "the barrier layer providing a stronger protection against mechanical forces than the overcoat layer" is merely a functional/intended use limitation that does not structurally distinguish the claimed invention over the prior art. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997).

18. Regarding **claim 42**, figure 9 and related text of Heck and figure 12 of Partridge disclose creating a vacuum inside the gas cavity by heating the micro electro-mechanical device in a chamber (paragraph [0014] and [0015]); and after the vacuum is created, forming a barrier layer (sealing material) 34 around the overcoat layer (cover) 20 within the chamber (controlled environment) (paragraph [0020]) to provide a vacuum-packed enclosure around the gas cavity 22, the barrier layer 34 comprising a metal material (paragraph [0018]).

19. Regarding **claim 52**, figure 9 and related text of Heck discloses wherein said gas cavity 22 is formed while decomposed molecules produced by decomposition of the sacrificial layer permeate the first overcoat layer 20 (paragraph [0014] and [0021]).
20. Regarding **claim 55**, figure 9 and related text of Heck discloses wherein said overcoat layer 20 is a solid overcoat layer (metal or dielectric used to form hermetic barrier).

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

23. Claims **27-29**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002; hereinafter Heck) in view of Freidhoff (US 2003/0155643, dated August 21st, 2003, filed February 19th, 2002).

24. Regarding **claims 27 & 28**, figure 9 and related text of Heck substantially discloses the claimed invention except wherein the substrate comprises a silicon material or a non-silicon material.

However, in the same field of endeavor figures 1-12 and related text of Freidhoff discloses a similar device wherein the substrate layer 30 comprises silicon (paragraph [0092]) or non silicon (gallium arsenide) material.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form Heck's device substrate with silicon or gallium arsenide material as taught by Freidhoff. The ordinary artisan would have been motivated to use such materials as a substrate because in a semiconductor manufacturing process, silicon or gallium arsenide material are known and conventional for making device substrates.

25. Regarding **claim 29**, figure 9 and related text of Heck substantially discloses the claimed invention except the thickness of the overcoat layer is within the range of 50nm and 500 um.

Parameters such as thickness in the art of semiconductor manufacturing process are subject to routine experimentation and optimization to achieve the desired device characteristics during fabrication.

However, in the same field of endeavor figures 1-12 and related text Freidhoff discloses a similar device wherein the thickness of the overcoat layer (helmet) 54 is 5um (paragraph [0032]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form an overcoat layer of Heck's device with a thickness 5 um as taught by Freidhoff. The ordinary artisan would have been motivated to form the thickness of the overcoat layer within the claimed range in order to make smaller devices (Freidhoff; paragraph [0032]).

26. Claim **37 and 53-54**, are rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002; hereinafter Heck) in view of Gallagher et al. (US 2004/0137728, dated July 15th, 2004, dated September 13th, 2003; hereinafter Gallagher).

27. Regarding **claim 37**, figure 9 and related text of Heck substantially discloses the claimed invention except wherein the micro electro- mechanical device includes a released mechanical structure before the sacrificial layer is formed.

However, in the same field of endeavor, figures 1A-1D of Gallagher discloses forming a released mechanical structure (metal lines) 15 before the sacrificial material 20 is formed (paragraph [0068]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the released structure of Heck's device before the sacrificial material is formed as taught by Gallagher. The ordinary artisan would have been motivated to form Heck's device in the above manner in order reduce process steps such as patterning the sacrificial layer to form the released structure.

28. Regarding **claims 53-54**, figure 9 and related text of Heck substantially disclose the claimed invention except the overcoat layer comprises a polymer or photodefinable polymer.

However, in the same field of endeavor, figures 1A-1D of Gallagher discloses the overcoat layer (overcoat material) comprises a polyimide or photodefinable polymer (Avatrel) (paragraph [0048]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the overcoat layer of Heck's device with a polyimide or a photodefinable polymer material as taught by Gallagher because such materials are conventional in the art for forming over coat layers. Since Gallagher teaches that photodefinable polymer is conventional overcoat material, it has been held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See also *In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA 1960). MPEP § 2144.07.

29. Claims **38-39, 43-45 and 47-49** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002; hereinafter Heck) in view of Silverbrook (US 2003/0122227, dated July 3rd, 2003, filed January 8th, 2002).

30. Regarding **claim 38**, figure 9 and related text of Heck substantially discloses the claimed invention except before the overcoat layer is formed, attaching the micro

electro-mechanical device to a metal packaging frame, wherein the overcoat layer comprises an epoxy resin encapsulating the micro electro-mechanical device and metal packaging frame assembly.

However, in the same field of endeavor figure 23 of Silverbrook discloses before the overcoat layer (protective layer, epoxy) 218 is formed, attaching the micro-electro-mechanical device to an integrated circuit package structure 216 (lead frame) (paragraph [0069]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Heck with the teachings of Silverbrook by attaching the micro electro-mechanical device to an integrated package structure comprising lead frame and forming an epoxy overcoat layer. The ordinary artisan would have been motivated to form Heck's device in the above manner for the purpose of forming electrical connection between the MEMS device and external devices and to provide environmental protection.

31. Regarding **claim 39**, figure 9 and related text of Heck discloses heating the micro assembly at a temperature (350°C - 425°C, which is a higher temperature, than the temperature for curing of an epoxy or overcoat layer, supporting document for epoxy curing temperature, see Bentley et al., US 3,639,928 co. 2 lines 38-40) for decomposing the sacrificial layer (paragraph [0015]).

Heck does not disclose heating the micro assembly at a temperature for curing the overcoat layer.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to heat the micro assembly device of Heck at a temperature for curing the overcoat layer (epoxy layer), because it is conventional in the semiconductor manufacturing art to cure an epoxy material for the purpose of making protection layer.

32. Regarding **claims 43-44**, figure 9 and related text of Heck substantially discloses the claimed invention except after the barrier layer is formed, attaching the micro electro-mechanical device to an integrated circuit package structure; and encapsulating the electro-mechanical device and integrated circuit package structure in a surrounding structure.

However, in the same field of endeavor figure 23 of Silverbrook discloses attaching the micro-electro-mechanical device to an integrated circuit package structure 216 (lead frame).

Therefore in view of such teachings, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Heck's with the teachings of Silverbrook by attaching the micro electro-mechanical device to an integrated package structure comprising lead frame. The ordinary artisan would have been motivated to form Heck's device in the above manner for the purpose of forming electrical connection between the MEMS device and external power supplies.

33. Regarding **claim 45**, figure 9 and related text of Heck substantially disclose the claimed invention except the integrated circuit package comprises a ceramic package.

However, in the same field of endeavor figure 23 of Silverbrook discloses encapsulating (paragraph [0069]) the electro-mechanical device and integrated circuit package structure with a ceramic package (paragraph [0002]).

Therefore in view of such teachings, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Heck's with the teachings of Silverbrook by encapsulating the micro electro-mechanical device with a ceramic package. The ordinary artisan would have been motivated to form Heck's device in the above manner in order to provide an additional mechanical and environmental protection.

34. Regarding, **claim 47**, figure 9 and related text of Heck discloses after the sacrificial layer 15 & 25 is decomposed (paragraph [0015]) encapsulating the electro-mechanical device and package structure in a protective coating 34 (paragraph [0021]).

Heck does not disclose attaching the micro electro-mechanical device to an integrated circuit package structure.

However, in the same field of endeavor, figure 23 of Silverbrook discloses attaching the micro-electro-mechanical device to an integrated circuit package structure 216 (lead frame) (paragraph [0069]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Heck's with the teachings of Silverbrook by attaching the micro electro-mechanical device to an integrated circuit package structure. The ordinary artisan would have been motivated to form Heck's device in the above manner for the purpose of forming external connection.

35. Regarding, **claims 48-49**, figure 9 and related text of Heck substantially discloses the claimed invention except the integrated circuit package structure comprises a lead frame and a ceramic package.

However, in the same field of endeavor figure 23 of Silverbrook discloses an integrated circuit package structure comprises 216 (lead frame) (paragraph [0069]) and a ceramic package (paragraph [0002]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Heck's with the teachings Silverbrook by attaching the MEMS device to a lead frame and ceramic package. The ordinary artisan would have been motivated to form Heck's device in the above manner for the purpose of connecting the MEMS device with other external devices and to form good device protection.

36. Claim **41**, is rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002; hereinafter Heck) in view of Partridge et al. (US 2004/0245586, dated December 9th, 2004, filed June 4th, 2003; hereinafter Partridge).

37. Regarding **claim 41**, figure 9 and related text of Heck substantially discloses the claimed invention except the barrier layer comprises a metal material.

However, in the same field of endeavor, figure 12 of Partridge discloses the barrier layer 28b & 28C comprises a metal material (paragraph [0092] & [0093]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the barrier layer of Heck's device with metal material as taught by Partridge. The ordinary artisan would have been motivated to form Heck's device in the above manner in order to provide good protection for the MEMS device.

38. Claim **46**, is rejected under 35 U.S.C. 103(a) as being unpatentable over Heck (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002; hereinafter Heck) in view of Barth et al. (US 2006/0014374, dated January 19th, 2006, filed June 3rd, 2003; hereinafter Barth).

39. Regarding **claim 46**, figure 9 and related text of Heck substantially discloses the claimed invention except the step of thermally decomposing the sacrificial layer occurs inside the vacuum chamber.

However, in the same field of endeavor, figure 1E of Barth et al discloses the method of decomposing the sacrificial layer 112 (paragraph [0062]) is formed inside the vacuum chamber (paragraph [0028]).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to form Heck's device by thermally decomposing the sacrificial layer inside a vacuum chamber as taught by Barth. The ordinary artisan would have been motivated to form Heck's device in the above manner for the purpose of forming particle free cavity.

40. Claim **50** is rejected under 35 U.S.C. 103(a) as being unpatentable over Heck et al. (US 2003/0183916, dated October 2nd, 2003, filed March 27th, 2002; hereinafter Heck) in view Fonash et al. (US 2004/005258, dated January 8th, 2004, filed December 12th, 2002; hereinafter Fonash).

41. Regarding **claim 50**, figure 9 and related text of Heck substantially discloses the claimed invention except wherein thermal decomposition temperature of the sacrificial layer is less than 100 degrees Celsius.

Parameters such as thermal decomposition temperature of the sacrificial material is inherent material property, moreover, there is no evidence that indicates the thermal decomposition temperature of the sacrificial layer to be less than 100 degrees Celsius is critical and it has been held that it is not inventive to discover the optimum workable temperature of a result-effective variable with given prior art conditions by routine experimentation. See MPEP 2144.05 Note that the specification contains no disclosure the critical nature the claimed temperature of any unexpected results there from.

However, in the same field of endeavor, figure 3 of Fonash teaches using a low temperature sacrificial layer (polycarbonate) (paragraph [0051] lines 35-40) which is the same material as the claimed invention (same material will have the same decomposition temperature).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the sacrificial layer of Heck's device with low temperature sacrificial material such as polycarbonate as taught by Fonash. The ordinary artisan would have been motivated to use low temperature sacrificial material,

in order to avoid exposing other parts of the device from high temperature during processing.

Response to Arguments

42. Applicant's amendment filed on 11/8/2010 overcame the objections to the drawings. Accordingly, the objection to the drawings has been withdrawn.

43. Claim 24 as amended by the amendment, claims 25-31, 33-50 and 52-55 as previously recited are currently in the application. Claim 32 is cancelled.

44. Applicant's arguments filed on 11/08/2010 have been fully considered but they are not persuasive. The Applicant's argues that, the limitation "the overcoat layer provides an airtight enclosure around the gas cavity" of the amended independent claim 24 is not taught by Heck. However, the examiner respectfully disagrees. Heck, discloses the cover 20 forms a hermetic barrier (paragraph [0018], lines 5-8)

The definition of "hermetic" according to the dictionary.com

her·met·ic 1. made airtight by fusion or sealing.

Heck clearly teaches the cover 20 is formed without openings (paragraph [0021] lines 6-10), and the cover 20 forms a hermetic barrier (paragraph [0018] lines 5-8). Furthermore, the cavity 22 formed by the cover 20 is a vacuum cavity or hermetic seal (paragraph [0014], lines 13-15). Therefore, the claimed limitation "the overcoat layer provides an airtight enclosure around the gas cavity" is taught by Heck.

45. For the reason mentioned above, the Applicant's argument is not found persuasive.

Conclusion

46. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOSEF GEBREYESUS whose telephone number is (571)270-5765. The examiner can normally be reached on Monday through Thursday 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne A. Gurley can be reached on 571-272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lynne A. Gurley/
Supervisory Patent Examiner, Art
Unit 2811

/YOSEF GEBREYESUS/
Examiner, Art Unit 2811
01/04/2011